

Amendments to the Specification

Please replace the title as follows:

**A SEPARABLE CLEANING PROCESSING DEVICE AND FOR AN IMAGE FORMING
APPARATUS (AS AMENDED)**

Please replace paragraph [0004] with the following rewritten paragraph:

[0004] When the toner particles adhere to a sheet, contaminants or foreign substances may adhere to the surface of the photosensitive drum from the sheet. Japanese Laid-Open Patent Publication No. 61-121076 discloses a device provided with a cleaning blade which is in contact with a surface of a photosensitive body at all times in order to physically remove contaminants ~~adhering~~ adhering to the photosensitive body.

Please replace paragraph [0006] with the following rewritten paragraph:

[0006] The invention addresses the above problems, and provides a more efficient cleaning system, by providing a contamination removing member that is capable ~~for~~ of being placed into contact with a photosensitive element and withdrawn from that contact. When in contact with the photosensitive element, the contamination main moving member removes contaminants such as paper dust or ~~residual~~ residual toner from the photosensitive element. When withdrawn from the photosensitive element, there being no contact with that element, damage caused by the removing member can be minimized or damage to the photosensitive element by the contaminant removing member is minimized. Thus, the life of the photosensitive element is increased.

Please replace paragraph [0050] with the following rewritten paragraph:

[0050] The toner is mixed with a coloring material, such as a carbon black, and wax, as well as silica as an external additive to improve the fluidity of the toner. A toner particle size is approximately ~~6 to 10 μ m~~ 6 to 10 μ m.

Please replace paragraph [0064] with the following rewritten paragraph:

[0064] By contacting the photosensitive drum 27 with sheets 3, paper dust and additives contained in the sheets 3 adhere to the surface of the photosensitive drum 27. The sheets 3 ~~contains~~ contain additives, such as a filler, a paper durability promoter, and a sizing agent, as well as fibers.

Please replace paragraphs [0104] - [0105] with the following rewritten paragraphs:

[0104] More particularly, the CPU 71 generally stops the rotation of the drive shaft 57 at the position where a detection signal from the position detector 64 ~~indicating~~ indicates the disengaged position, so that the cleaning roller 52 is positioned at a distance from the photosensitive drum 27. The CPU 71 rotates the drive shaft 57 until the detection signal from the position detector 64 indicates the engaged position so as to make the cleaning roller 52 contact and press the photosensitive drum 27.

[0105] Then, the CPU 71 controls the engaging and disengaging mechanism drive 81 so that the cleaning roller 52 is held at the position where the detection signal indicating the ~~disengaged~~ engaged state, for a predetermined period of time, for example, at least a time required for one revolution of the photosensitive drum 27. Then, the CPU 71 rotates the drive shaft 57 until the detection signal from the position detector 64 indicates the disengaged state so as to make the cleaning roller 52 disengage from the photosensitive drum 27.

Please replace paragraph [0125] with the following rewritten paragraph:

[0125] The sheet feed mechanism 107 includes a sheet feed roller 112, a separation pad 113 facing the sheet feed roller 112, and a spring 114 provided under the separation ~~pad 113~~ pad 113 so as to urge the separation ~~pad 113~~ pad 113 against the sheet feed ~~roller 112~~ roller 112 by its urging force. A topmost sheet 103 in the stack on the sheet pressing plate 111 is pressed against the sheet feed roller 112 by the spring provided under the sheet pressing plate 111. As the sheet feed roller 112 rotates, the topmost sheet 103 is pinched

between the sheet feed roller 112 and the sheet feed pad 113 by the rotation of the sheet feed roller 112, thereby feeding the topmost sheet 103. As described above, the sheets 103 in the stack are fed one by one from the feeder unit 104. Then, the fed sheet 103 is further conveyed to the resist rollers 110.

Please replace paragraph [0134] with the following rewritten paragraph:

[0134] The toner hopper 132 accommodates positively electrically charged toner of a single non-magnetic component as a developing agent. The toner to be used is polymerized toner that is obtained by copolymerizing monomers, such as styrene-based monomers, for example, styrene, and polymerizable monomers, such as acrylic-based monomers, for example, acrylic acid, alkyl (C1-C4) acrylate, and alkyl (C1-C4) methacrylate, using a known polymerization method, such as a suspension polymerization. Polymerized toner particles are spherical in shape, having excellent fluidity, so that a high-quality image can be formed. The toner is mixed with a coloring material, such as a carbon black, and wax, as well as silica as an external additive to improve the fluidity of the toner. A toner particle size is approximately ~~6 to 10 μ m~~ 6 to 10 μ m.

Please replace paragraphs [0146] and [0047] with the following rewritten paragraphs:

[0146] When the developing cartridge 129 is attached to the casing 102 with the drum ~~cartridge 128~~ cartridge 127 attached, the engaging portion 202 of the developing cartridge 129 is pinched between the pressing plate 203 and the swing plate 205. During the development, by rotating the cam 206 by the power transmitted from an engaging and disengaging motor (not shown), the thin portion 206a of the cam 206 is brought into contact with the lower portion of the swing plate 205.

[0147] Then, the pressing plate 203 presses the engaging portion 202 toward the photosensitive drum 128 by the urging force from the pressing spring 204. At that time, the swing plate 205 also swings toward the photosensitive drum 128 and, thus, the thin

portion 206a of the cam 206 contacts the lower portion of the swing plate 205 as shown by the solid line in FIG. 9. As described, as the engaging portion 202 moves in the direction toward the photosensitive ~~drum 128~~. The drum 128, the whole developing cartridge 129 also moves in the same direction and the developing roller 134 moves to the engaged position where the developing roller 134 contacts the photosensitive drum 128.

Please replace paragraph [0185] with the following rewritten paragraph:

[0185] Recycled paper, which is used more often today, contains high amounts of such additives. However, when such additives adhere to the surface of the photosensitive ~~drum 218, drum 128~~, there may be a case where the paper dust and the additives cannot be cleanly removed by the first cleaning roller 172. In order to avoid this problem, the laser-beam printer 101 of the second embodiment includes a contaminant removing member 181 for removing contaminants (including additives described above) adhering to the surface ~~of~~ he of the photosensitive drum 128, which is detachably attached to the developing cartridge 129, as shown in FIGS. 10 and 12.

Please replace paragraph [0187] with the following rewritten paragraph:

[0187] The contaminant removing portion 182 is made of, for example, paper, wrapping paper, felt or nonwoven fabric. It is preferable that the contaminant removing portion 182 is made of paper and has a substantially rectangular shape. The contaminant removing ~~portion 82~~ portion 182 has a length, which is shorter than or equal to the roller material of the developing roller 134 and longer than or equal to the length of the image forming area of the photosensitive drum 128 in the axial direction of the photosensitive drum 128. Because the length of the contaminant removing portion 182 is longer than or equal to the length of the image forming area of the photosensitive drum 128, contaminants adhering to the image forming area of the photosensitive drum 128 can be surely removed.

Please replace paragraph [1097] with the following rewritten paragraph:

[1097] As shown in FIG. 12, the reserve side of the support portion 184 is concavely curved like an arc wherein the thickness of the support portion 184 becomes gradually thinner toward what is substantially the middle of the support ~~portion 84,~~ portion 184, when viewed from the side. The arc portion of the support portion 184 and the developing roller 134 are concentric circles. In a state where the support portion 184 is attached to the developing cartridge 129, the surface of the reverse side of the support portion 184 does not contact the developing roller 134.

Please replace paragraph [0201] with the following rewritten paragraph:

[0201] The contaminant removing member 181 structured as described above is attached to the developing cartridge 129, and then the developing cartridge 129 attached with the ~~contaminants~~ contaminant removing member 181 is attached to the drum cartridge 127.

Please replace paragraph [0220] with the following rewritten paragraph:

[0220] The removing of contaminants from the photosensitive drum 128 by the contaminant removing member 181 is performed at an appropriate timing, that is, the time at which an image quality is degraded due to adhesion of contaminants to the photosensitive drum 128. The image quality can be determined by the number of white dots appearing in solid printing. For example, the contaminant removal operation is performed by attaching the contaminant removing member 181 to the developing cartridge 129 after 1000 to 5000 sheets of printing is performed. The photosensitive drum 128 has a lifespan of up to approximately 15000 copies, so that it is enough to perform the contaminant removing ~~operation 103~~ operation 3 to 15 times until the photosensitive drum 128 comes to the end of its lifetime.

Please replace paragraphs [0228] - [0229] with the following rewritten paragraphs:

[0228] Alternatively, the support ~~portion 184~~ portion 184b and the attaching ~~portion 185~~ portion 185b of the contaminant removing ~~member 181~~ member 181b can be

made of a film as shown in FIG. 14. In FIG. 14, the same parts are designated by the similar numerals as the second embodiment, and explanations of those parts will be omitted.

[0229] As shown in FIG. 14, ~~a contaminant~~ the contaminant removing member 181b includes a contaminant removing portion 182b, a sponge member 183b, a ~~support~~ the support portion 184b, ~~and an~~ and the attaching portion 185b. The support portion 184b and the attaching portion 185b are integrally formed by a flexible resin film made of polyethylene terephthalate (PET). The support portion 184b extends along the longitudinal sides of the developing roller 134 and faces the developing roller 134. An upper portion of the support portion 184b is bent into a substantially V-shape to form the attaching portion 185b. A lower part of the support portion 184b is bent so as to be opposite to the photosensitive drum 128 and is attached with the contaminant removing portion 182b via the sponge member 183b.

Please replace paragraph [0236] with the following rewritten paragraph:

[0236] As shown in FIG. 15, an insertion groove 191 can be provided at an upper portion of the drum cartridge 127. A contaminant removing member 181c can be designed so as to be detachably attached to the drum cartridge 127 by inserting an attaching portion 185c of the contaminant removing ~~portion 182b~~ member 181c into the insertion groove 191.

Please replace paragraph [0238] with the following rewritten paragraph:

[0238] The sponge member 183c is made of urethane sponge and has a substantially rectangular shape. The sponge member 183c is adhered to the support portion 184c at a position opposite to the photosensitive drum 128 so as to extend in the longitudinal direction of the support portion 184c. The contaminant removing portion 182c is made of a material such as paper, wrapping paper, felt, or nonwoven fabric, and is adhered to the surface of the sponge member 183b. The materials suitable for the contaminant removing portion 182c is ~~the~~ are the same materials described previously.

Please replace paragraph [0242] with the following rewritten paragraph:

[0242] The support portion 184c of the contaminant removing member 181c is made of a flexible resin film. ~~As the~~ The contaminant removing member 181c is pressed by the engaging and disengaging mechanism 201 moving the developing cartridge 129 causing the developing roller 134 to contact the support portion 184c and press the contaminant removing portion 182c against the photosensitive drum 128 by the pressure from the support portion 184c. With this structure, the pressing force from the contaminant removing member 181c against the surface of the photosensitive drum 128 can be surely ensured.

Please replace paragraph [0247] with the following rewritten paragraph:

[0247] When a solenoid (not shown) presses the support portion 184d, the support portion 184d moves to the engaged position to contact the contaminant removing portion 182d to the photosensitive drum 128. The contaminant removing portion 182d contacts the surface of the photosensitive ~~drum 28~~ drum 128 with a relatively strong pressure, so that contaminants adhering to the photosensitive drum 128 are excellently removed.

Please replace paragraph [0261] with the following rewritten paragraph:

[0261] When the developing cartridge 129 is attached to the drum cartridge 127, a ~~pressing~~ the pressing portion 212 contacts and presses the slide member 214, so that the slide member 214 moves toward the spring fixing portion 216 against the urging force from the spring 215.